

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application and consideration and entry of this paper are respectfully requested in view of the herein remarks, which place the application in condition for allowance.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1-19 are currently pending. Claims 1-7 were withdrawn from this application in a response to a restriction requirement. Claims 9, 11, 13, and 14 are hereby cancelled. Claims 8, 12, 18, and 19 are hereby amended. No new matter has been introduced. Support for this amendment is provided throughout the Specification as originally filed, for example at page 7, line 10; page 11, line 15; page 20, line 8, (paragraphs [0035], [0060], and [0087] of the Application published as 2009/0100911), and the original claims.

II. REJECTIONS UNDER 35 U.S.C. §102 and § 103

Claims 8, 11-12, and 15-18 are rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,728,882 to Stanbro et al. ("Stanbro").

Claims 9 and 13 are rejected under 35 U.S.C. § 103(a) as unpatentable over Stanbro.

Claims 10, 14, and 19 are rejected under § 103(a) as unpatentable over Stanbro in view of U.S. Patent No. 4,510,436 to Raymond ("Raymond").

Applicant respectfully traverses for at least the following reasons.

As indicated above in the listing of claims, claims 9, 11, 13 and 14 are cancelled, making moot the rejections of those claims.

Independent claim 8 recites, *inter alia*:

An alcohol concentration sensor of an electrostatic capacitance type for measuring an alcohol concentration in fuel for internal combustion engine mixed with alcohol, comprising:

an insulating substrate having a thickness between 200 and 1000 μm ...and

a resin mold for sealing...

wherein the insulating substrate is made of a material showing a specific dielectric constant of not higher than 5, and each of the pair of electrodes is at least partly covered by an insulating protective film having a thickness between 0.4 and 1 μm , and

wherein the resin mold exposes to the outside at least a part of the surface of the insulation substrate with the electrodes formed thereon.

Accordingly, the claimed invention is directed to (1) **an alcohol concentration sensor of an electrostatic capacitance type for measuring an alcohol concentration in fuel for internal combustion engine mixed with alcohol**, (2) **wherein the insulating substrate is made of a material showing a specific dielectric constant of not higher than 5.**

In rejecting claim 8, the Office Action asserts on page 2 that Stanbro teaches an alcohol concentration sensor of an electrostatic capacitance type for measuring an alcohol concentration in fuel for internal combustion engine mixed with alcohol, citing to Fig. 1. The description of Fig. 1, found at column 3, lines 43-45, makes no mention of a sensor for alcohol as the analyte and fuel for internal combustion engine as the solution. In fact, at column 4, lines 58-60, Stanbro notes that, "Previous experimentation showed no response of the sensor to alcohol." Emphasis added. Contrary to the assertion in the Office Action, Stanbro does not suggest the specific combination of "alcohol" as the analyte and "fuel for internal combustion engine" as the solution.

Therefore, Stanbro fails to teach at least **an alcohol concentration sensor of an electrostatic capacitance type for measuring an alcohol concentration in fuel for internal combustion engine mixed with alcohol** as required by claim 8.

Page 2 of the Office Action further asserts that Stanbro teaches the insulating substrate is made of a material showing a specific dielectric constant of not higher than 5, relying on column 7, line 55 of Stanbro, where it is disclosed that the substrate can be made from insulating material such as alumina wafer. The Office Action then asserts the alumina substrate has "the inherent property" of a dielectric constant of 4.5, citing page 3 of the *Dielectric Constant Reference Guide*.

However, the reliance on inherency is misplaced. As explained at MPEP 2112:

To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (internal quotations omitted).

The reference cited in the Office Action discloses a significant range of dielectric constants significantly different from the claimed dielectric constant of 4.5. Page 3 of the *Dielectric Constant Reference Guide*, as cited in the Office Action, indicates alumina may have a dielectric constant of 9.3-11.5. Contrary to the assertion in the Office Action, alumina does not have an inherent dielectric constant of 4.5.

Additionally, other reference indicates alumina has a dielectric constant of 9 (See <http://www.cetektechnologies.com/996.php>, page 2) or 6.5 (See http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TWV-4KB112V-1&_user=10&_coverDate=10%2F31%2F2006&_alid=1054772598&_rdoc=1&_fmt=high&_ori

g=search& cdi=5572& sort=r& docanchor=&view=c& ct=522& acct=C000050221& version=1& urlVersion=0& userid=10&md5=40ddd144f18305e31a3f970a8d84637b, page 2).

The referenced range of dielectric constant for alumina in the *Dielectric Constant Reference Guide* corresponds to the comparative example described in the experiment of the instant Specification at page 18, lines 8-23 (paragraph [0082] of the Application published as 2009/0100911).

Stanbro is silent on the dielectric constant of alumina, merely mentioning the material as “an insulating material.” *Stanbro*, column 7, line 55. There is no disclosure in the cited portion of Stanbro of alumina having an inherent dielectric constant of 4.5. In fact, the *Dielectric Constant Reference Guide* as cited, and other readily available references, all indicate a significant range of dielectric constants for alumina, all higher than the claimed constant of not higher than 5.

Therefore, although Stanbro discloses an alumina substrate, the reference does not suggest any particular alumina or any particular dielectric constant for alumina. Consequently, Stanbro does not teach an **insulating substrate...made of a material showing a specific dielectric constant of not higher than 5** as required by claim 8.

Consequently, because Stanbro does not teach each and every element of the claim either expressly or inherently described as mandated by M.P.E.P. § 2131, the § 102 rejection must fail as a matter of law.

Reconsideration and withdrawal of the § 102 rejection in this application is requested.

Page 5 of the Office Action concedes that Stanbro fails to explicitly teach a thickness for the insulating substrate or a thickness of the insulating layer that is between 0.4 a 1 micron. The Office Action goes on to assert that it would have been obvious to one of ordinary skill in the art

to have used the claimed thickness by “following the relative proportions depicted in Figures 1 and 3.” Applicants respectfully traverse.

As stated in M.P.E.P. § 2125,

When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000) (The disclosure gave no indication that the drawings were drawn to scale. “[I]t is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.”).

Stanbro is silent on the scale of the drawings. Therefore, contrary to the assertion in the Office Action, it is not obvious from Stanbro that certain components may have any particular dimensions. Accordingly, it is not obvious to use **an insulating protective film having a thickness between 0.4 and 1 μ m** as required by claim 8.

Page 6 of the Office Action asserts Raymond teaches “a resin cover and case.” Raymond describes the case in column 2, lines 41-42 as, “a thin-walled hollow structure divided by a central partition...into chambers.” However, Applicants note instant claim 8 recites “a resin mold for sealing...wherein the resin mold exposes to the outside at least a part of the surface of the insulation substrate with the electrodes formed thereon,” and respectfully submit that one of skill in the art would not recognize a thin-walled hollow structure to be a mold for sealing. Accordingly, Raymond fails to teach **a resin mold for sealing...wherein the resin mold exposes to the outside at least a part of the surface of the insulation substrate with the electrodes formed thereon** as required by claim 8.

For at least the foregoing reasons, it is believed that revised independent claim 8 patentably distinguishes over the relied upon portions of Stanbro and Raymond, either alone or in combination, and is therefore allowable. Further, claims 10, 12, and 15-19, which depend from claim 8, are allowable as well.


Statements appearing above with respect to the disclosures in the cited references represent the present opinions of the Applicants' undersigned attorney and, in the event that the Examiner disagrees with any such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the respective reference providing the basis for a contrary view.

CONCLUSION

In view of the foregoing, it is believed that the present application is in condition for allowance. Accordingly, Applicants' attorneys respectfully request that a timely Notice of Allowance be issued in this case.

Please charge any fees incurred by reason of this response and not paid herewith to Deposit Account No. 50-0320.

Respectfully submitted,
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